

REMARKS

This is a full and timely response to the outstanding non-final Office Action mailed August 28, 2007. Claims 1, 3-6, 8-11, and 13-14 remain pending in the present application. Reconsideration and allowance of the application and pending claims are respectfully requested.

1. Response to Rejections of Claims under 35 U.S.C. §112

Claims 1-14 have been rejected under 35 U.S.C. §112 as allegedly claiming material not disclosed in the specification. In particular, the Office Action states that claims 1-14 denote a "first portion" and "second portion" that are not clearly defined within the original disclosure. In response, Applicants point to page 6 which refers to "two parts" or portions of a model of an animat. The two portions correspond to a high-level brain (HLB) and a low-level brain (LLB). "Different LLB's are designed for the Hi-Fi Sim and the Lo-Fi Sim." Page 6, lines 26-27. Therefore, the different LLB's may be regarded as different versions of a second portion of a model of a creature. Therefore, claim language, such as "a first portion which contains functions for use in both of said different complexities of simulation; and a second portion comprising two alternative versions: a first version for use in one of said different complexities of simulation; and a second version for use in the other of said different complexities of simulation," as recited in claim 1 is clearly supported and defined within the original disclosure. Accordingly, withdrawal of the rejections is respectfully requested.

2. Response to Rejections of Claims under 35 U.S.C. §102

Claims 1-14 have been rejected under 35 U.S.C. §102(b) as being anticipated by *French* ("The Hi-Noon Neural Simulator and its Applications to Animal, Animat and Humanoid Studies). Applicants respectfully traverse this rejection.

It is axiomatic that "[a]nticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." *W. L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1554, 220 USPQ 303, 313 (Fed. Cir. 1983). Therefore, every claimed feature of the claimed subject matter must be represented in the applied reference to constitute a proper rejection under 35 U.S.C. §102(b). In the

present case, not every feature of the claimed subject matter is represented in the *French* reference.

a. **Claim 1**

As provided in independent claim 1, Applicants claim:

A method of simulating a creature for use in two different complexities of simulation, the method comprising:

utilizing a model of the creature that comprises at least two portions:

a first portion which contains functions for use in both of said different complexities of simulation; and

a second portion comprising two alternative versions:

a first version for use in one of said different complexities of simulation; and

a second version for use in the other of said different complexities of simulation,

wherein said first portion comprises a behavior selection mechanism arranged to select the behavior of said creature and said second portion is arranged to execute the selected behavior.

(Emphasis added).

Applicants respectfully submit that independent claim 1 is allowable for at least the reason that *French* does not disclose, teach, or suggest at least “utilizing a model of the creature that comprises at least two portions: a first portion which contains functions for use in both of said different complexities of simulation; and a second portion comprising two alternative versions: a first version for use in one of said different complexities of simulation; and a second version for use in the other of said different complexities of simulation, wherein said first portion comprises a behavior selection mechanism arranged to select the behavior of said creature and said second portion is arranged to execute the selected behavior,” as recited and emphasized above in claim 1.

Rather, *French* describes a Hi-NOON program that facilitates simulation of neurons where each neuron type is modeled at different levels of abstraction. Accordingly, a “noisy” neuron is similar to a “basic” neuron but is modeled to have an additional internal noise component. A “ramp” neuron is similar to a “noisy” neuron but is modeled to have an ability to ramp up spike generation rate. See section 2.4 on page 2054. Each of the types of neurons are used in a simulation and are not

restricted to being used in one level of complexity of simulation where a corresponding neuron model is used in a second level of complexity. Accordingly, this allows a "non-homogeneous population of neurons to be simulated" in *French*. See section 2.4 on page 2054.

As a result, *French* fails to teach or suggest "utilizing a model of the creature that comprises at least two portions: a first portion which contains functions for use in both of said different complexities of simulation; and a second portion comprising two alternative versions: a first version for use in one of said different complexities of simulation; and a second version for use in the other of said different complexities of simulation," as recited in claim 1. For example, *French* does not disclose two versions of a noisy neuron to be used in different complexities of simulation. Moreover, *French* does not disclose the first portion comprising a behavior selection mechanism arranged to select the behavior of the creature and/or a second portion that is arranged to execute the selected behavior, as described in claim 1.

For at least these reasons, *French* does not teach or suggest all of the features of claim 1, and the rejection of claim 1 should be withdrawn.

b. Claims 3-6 and 8

Because independent claim 1 is allowable over the cited art of record, dependent claims 3-6 and 8 (which depend from independent claim 1) are allowable as a matter of law for at least the reason that dependent claims 3-6 and 8 contain all the features of independent claim 1. For at least this reason, the rejections of claims 3-6 and 8 should be withdrawn.

Claims 2 and 7 are canceled without prejudice, waiver, or disclaimer, and therefore, the rejection to these claims are rendered moot. Applicants take this action merely to reduce the number of disputed issues and to facilitate early allowance and issuance of other claims in the present application. Applicants reserve the right to pursue the subject matter of these canceled claims in a continuing application, if Applicants so choose, and do not intend to dedicate any of the canceled subject matter to the public.

c. **Claim 9**

As provided in independent claim 9, Applicants claim:

A method of simulating activities of a plurality of creatures, the method comprising ***utilizing at least two modes of simulation:***

a first mode arranged to simulate the activities of all of said creatures; and

a second mode arranged to simulate an activity of at least one of said creatures at a more detailed level than said first mode; wherein a model of a creature simulated in both modes of simulation comprises at least two portions:

a first portion which contains functions arranged for use in both of said modes of simulation; and

a second portion comprising two alternative versions, a first version for use in said first mode of simulation, and a second version for use in the second mode.

(Emphasis added).

Applicants respectfully submit that independent claim 9 is allowable for at least the reason that *French* does not disclose, teach, or suggest at least “utilizing at least two modes of simulation: a first mode arranged to simulate the activities of all of said creatures; and a second mode arranged to simulate an activity of at least one of said creatures at a more detailed level than said first mode; wherein a model of a creature simulated in both modes of simulation comprises at least two portions: a first portion which contains functions arranged for use in both of said modes of simulation; and a second portion comprising two alternative versions, a first version for use in said first mode of simulation, and a second version for use in the second mode,” as emphasized above.

Rather, *French* describes a Hi-NOON program that facilitates simulation of neurons where each neuron type is modeled at different levels of abstraction. Accordingly, a “noisy” neuron is similar to a “basic” neuron but is modeled to have an additional internal noise component. A “ramp” neuron is similar to a “noisy” neuron but is modeled to have an ability to ramp up spike generation rate. See section 2.4 on page 2054. Each of the types of neurons are used in a simulation and are not restricted to being used in one level of complexity of simulation where a corresponding neuron model is used in a second level of complexity. Accordingly, this allows a “non-

homogeneous population of neurons to be simulated" in *French*. See section 2.4 on page 2054.

As a result, *French* fails to teach or suggest "utilizing at least two modes of simulation: a first mode arranged to simulate the activities of all of said creatures; and a second mode arranged to simulate an activity of at least one of said creatures at a more detailed level than said first mode; wherein a model of a creature simulated in both modes of simulation comprises at least two portions: a first portion which contains functions arranged for use in both of said modes of simulation; and a second portion comprising two alternative versions, a first version for use in said first mode of simulation, and a second version for use in the second mode," as recited in claim 9. For at least these reasons, *French* does not teach or suggest all of the features of claim 9, and the rejection of claim 9 should be withdrawn.

d. **Claim 10**

As provided in independent claim 10, Applicants claim:

A method of simulating a process at two different levels of complexity, the method comprising:

utilizing a model that comprises at least two portions:

a first portion which contains functions for use in both of said different complexities of simulation; and

a second portion comprising two alternative versions:

a first version for use in one of said different complexities of simulation; and

a second version for use in the other of said different complexities of simulation, wherein the second version is for use in the less complex of the simulations, and is arranged to approximate the functionality of the first version.

(Emphasis added).

Applicants respectfully submit that independent claim 10 is allowable for at least the reason that *French* does not disclose, teach, or suggest at least "utilizing a model that comprises at least two portions: a first portion which contains functions for use in both of said different complexities of simulation; and a second portion comprising two alternative versions: a first version for use in one of said different complexities of simulation; and a second version for use in the other of said different complexities of

simulation, wherein the second version is for use in the less complex of the simulations, and is arranged to approximate the functionality of the first version," as emphasized above.

Rather, *French* describes a Hi-NOON program that facilitates simulation of neurons where each neuron type is modeled at different levels of abstraction. Accordingly, a "noisy" neuron is similar to a "basic" neuron but is modeled to have an additional internal noise component. A "ramp" neuron is similar to a "noisy" neuron but is modeled to have an ability to ramp up spike generation rate. See section 2.4 on page 2054. Each of the types of neurons are used in a simulation and are not restricted to being used in one level of complexity of simulation where a corresponding neuron model is used in a second level of complexity. Accordingly, this allows a "non-homogeneous population of neurons to be simulated" in *French*. See section 2.4 on page 2054.

As a result, *French* fails to teach or suggest "utilizing a model that comprises at least two portions: a first portion which contains functions for use in both of said different complexities of simulation; and a second portion comprising two alternative versions: a first version for use in one of said different complexities of simulation; and a second version for use in the other of said different complexities of simulation," as recited in claim 10. For example, *French* does not disclose two versions of a noisy neuron to be used in different complexities of simulation. Moreover, *French* fails to disclose where "the second version is for use in the less complex of the simulations, and is arranged to approximate the functionality of the first version." For example, *French* does not disclose two versions of neurons where one version is used in a less complex simulation and the other is used in a high complex simulation. Rather, *French* discloses different types of neurons have different complexities based on the neuron-type and not the level of complexity of the simulation.

For at least these reasons, *French* does not teach or suggest all of the features of claim 10, and the rejection of claim 10 should be withdrawn.

e. Claims 11 and 13

Because independent claim 10 is allowable over the cited art of record, dependent claims 11 and 13 (which depend from independent claim 10) are allowable as a matter of law for at least the reason that dependent claims 11 and 13 contain all the features of independent claim 10. For at least this reason, the rejections of claims 11 and 13 should be withdrawn.

Claim 12 is canceled without prejudice, waiver, or disclaimer, and therefore, the rejection to the claim is rendered moot. Applicants take this action merely to reduce the number of disputed issues and to facilitate early allowance and issuance of other claims in the present application. Applicants reserve the right to pursue the subject matter of the canceled claim in a continuing application, if Applicants so choose, and do not intend to dedicate any of the canceled subject matter to the public.

f. Claim 14

As provided in independent claim 14, Applicants claim:

A simulator device arranged to simulate a creature in two different complexities of simulation, ***the device being arranged to utilise a model of the creature that comprises at least two portions: a first portion which contains functions used in both of said different complexities of simulation; and a second portion comprising two alternative versions, a first version used in one of said different complexities of simulation, and second version used in the other of said different complexities of simulation.***

(Emphasis added).

Applicants respectfully submit that independent claim 14 is allowable for at least the reason that *French* does not disclose, teach, or suggest at least a "device being arranged to utilise a model of the creature that comprises at least two portions: a first portion which contains functions used in both of said different complexities of simulation; and a second portion comprising two alternative versions, a first version used in one of said different complexities of simulation, and second version used in the other of said different complexities of simulation," as recited and emphasized above in claim 14.

Rather, *French* describes a Hi-NOON program that facilitates simulation of neurons where each neuron type is modeled at different levels of abstraction. Accordingly, a “noisy” neuron is similar to a “basic” neuron but is modeled to have an additional internal noise component. A “ramp” neuron is similar to a “noisy” neuron but is modeled to have an ability to ramp up spike generation rate. See section 2.4 on page 2054. Each of the types of neurons are used in a simulation and are not restricted to being used in one level of complexity of simulation where a corresponding neuron model is used in a second level of complexity. Accordingly, this allows a “non-homogeneous population of neurons to be simulated” in *French*. See section 2.4 on page 2054.

As a result, *French* fails to teach or suggest a “device being arranged to utilise a model of the creature that comprises at least two portions: a first portion which contains functions used in both of said different complexities of simulation; and a second portion comprising two alternative versions, a first version used in one of said different complexities of simulation, and second version used in the other of said different complexities of simulation,” as recited in claim 14. For example, *French* does not disclose two versions of a noisy neuron to be used in different complexities of simulation. Moreover, *French* fails to disclose where “the second version is for use in the less complex of the simulations, and is arranged to approximate the functionality of the first version.” For example, *French* does not disclose two versions of neurons where one version is used in a less complex simulation and the other is used in a high complex simulation. Rather, *French* discloses different types of neurons have different complexities based on the neuron-type and not the level of complexity of the simulation. For at least these reasons, *French* does not teach or suggest all of the features of claim 14, and the rejection of claim 14 should be withdrawn.

CONCLUSION

For at least the reasons set forth above, Applicants respectfully submit that all objections and/or rejections have been traversed, rendered moot, and/or accommodated, and that the pending claims are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned agent at (770) 933-9500.

Respectfully submitted,



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